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THE PREDICATE TERM

IN a former paper[1] I argued that, since the partial inverse of the *A* proposition is valid, the doctrine of the distribution of the predicate breaks down. The partial inverse, *Some non-S is not P*, contains a distributed term, *P*, which is undistributed in the proposition, *All S is P*, from which the partial inverse is derived. According to the advocates of the distribution of the predicate, when the *O* proposition is converted or the conclusion, *Some S is not P*, is drawn from the premises, *All M is P*, *Some S is not M*, the result is invalid; and the reason they assign for the invalidity of the converse and the conclusion is that the term in the predicate is distributed, whereas it is undistributed in the convertend and the major premise. My contention, in brief, is this: If that reason invalidates the converse or the conclusion, it must also invalidate the partial inverse of *A*; but it is admitted that it does not invalidate the partial inverse of *A*; therefore it does not invalidate the converse or the conclusion.

In an article which was recently published in this JOURNAL[2] Dr. Hammond discusses my paper, but he adduces no argument which in any way affects the justice of the foregoing contention. He occupies himself in showing by a process distinct from the ordinary one that the partial inverse of *A* is valid and that in this partial inverse *P* must be distributed with reference to *non-S*. Again, he says (p. 128): "The formal violation of the rule as to distribution is apparent in one case only. . . . The partial inverse of *A* is the only case in which an originally undistributed term reappears distributed." This is exactly what I maintained in my paper. I there said: "The partial inverse of the *A* proposition violates this rule [as to distribution] and yet it is valid." But then I continued: "I infer from this that the doctrine of the distribution of the predicate breaks down" (p. 322). Dr. Hammond does not himself draw this inference, but neither on the other hand does he advance any reason to show that it is unwarranted. I do not wish to misinterpret Dr. Hammond. It may be that by the word "apparent" in the passage I have quoted he means that the formal violation of the rule as to distribution is merely apparent and not real. If this is his meaning, he gives no proof that it is not real.

The following quotation contains a summary of his argument: "The assumption of the existence of the contradictory of the original predicate validates the partial inverse: not that we manufacture any premise therefrom, but that, if that contradictory exist, the term by

[1] This JOURNAL, Vol. XVIII, pp. 320–326.

[2] Vol. XIX, pp. 124–137.

its very nature will always be distributed with regard to it; and that obviously in the *A* proposition with which we start, if the contradictory of the predicate exist, then the subject must have a contradictory which in some part must coincide with the contradictory of the predicate; and with regard to that part the predicate will always be distributed. . . . The case, then, in the matter of the partial inverse is this. The explanation does not lie in any premise, but does lie in the assumption of the existence of the contradictory of the original predicate. For if that contradictory exist, then the predicate, being always distributed with regard to it, must also be distributed with regard to whatever portion of the contradictory of the original subject coincides with it; and somewhere within the same universe these two infinites must at least partially coincide. We have thus the right to say *Some not-S is not P,* since *P* must be distributed with regard to some portion of *not-S*" (p. 127).

This passage suggests the following remarks:

First: The utmost that is achieved by Dr. Hammond's argument is that *P* must be distributed with regard to *not-S,* and hence that we have a right to say *Some not-S is not P.* It does not touch, even remotely, the question whether there is not in the partial inverse a formal violation of the rule as to distribution. If Dr. Hammond's argument constitutes a separate proof of the validity of the partial inverse it also constitutes a separate proof of the correctness of my contention that the doctrine of the distribution of the predicate breaks down; for my contention is based upon the fact that the partial inverse of *A* is valid, that *P must* be distributed with regard to *non-S.*

Secondly: If in the case of any concrete *A* proposition inversion is impossible, this is never due to the fact that *P* is distributed in the partial inverse. The partial inverse of *A* is never invalid unless the full inverse, *Some non-S is non-P,* is invalid, and there is no distributed *P* in the full inverse. In fact, in the process of inverting *A* the full inverse is obtained before the partial inverse; and if the partial inverse is in any instance invalid, this is because it is validly derived from an invalid full inverse.

Thirdly: The partial inverse of *A* is much more fortunately circumstanced than the converse. It is an exceedingly rare occurrence to find an *A* proposition which can not be inverted; but the *A* propositions which can not be converted meet us at every turn. Even the example offered by Dr. Keynes as incapable of inversion, namely, *All human actions are foreseen by the Deity,* admits of a true and valid partial inverse. The Deity does not foresee Himself. Hence we are warranted in inferring *Something not a human action is not*

foreseen by the Deity. The example should have read *All human actions are known to the Deity.* Moreover, it is notorious how common are the *E* propositions which can not be converted or inverted. Consequently, any argument directed against the inversion of *A* on the score that some *A* propositions can not be inverted will tell with indefinitely greater force against the conversion of *A* and *E*. It should be observed in addition that, if a single invalid inverse be deemed sufficient to condemn the process of inversion, then conversion and obversion must also be condemned if in a single instance they issue in an invalid proposition. The only *A* propositions which can not be inverted are those in which the predicate is a term which extends to everything whatsoever—such as "entity" or one of its synonyms. This is the only kind of term that does not imply a contradictory from which it is distinct. All other terms have it as their very function to mark off their object from other objects.

Fourthly: Dr. Hammond says: "The assumption of the existence of the contradictory of the original predicate validates the partial inverse." It is just as true to say: "The assumption of the existence of the original subject validates the converse of *A*." These statements are equivalent to the following: "*All S is P* can not be inverted unless we assume *Some things are non-P*, and it can not be converted unless we assume *Some things are S*." As they stand, both statements are open to serious misinterpretation. The accurate wording would be: "*All S is P* can not be inverted unless (we assume that) it *implies Some things are non-P*, and it can not be converted unless (we assume that) it *implies Some things are S*." If *All S is P* does not imply *Some things are non-P*, the mere assumption that *Some things are non-P* will not help us to invert *All S is P*. Thus, the proposition, *Every tree is an entity*, does not imply *Some things are nonentities*, and therefore it can not be inverted, no matter what assumption be made. It should also be remarked that, if *A* and *E* be interpreted as implying the existence of their subject, the example we have just mentioned can not be contraposited; for "nonentity" would be the subject of both the partial and the full contrapositive.

It must be remembered that logic has to start with concrete examples. Without an initial knowledge of concrete examples symbols are unintelligible. We can only know that *Some P is S* is the converse of *All S is P* because this is true of the concrete examples with which we started. We know by experience that many *A* propositions imply the existence of their subject, and therefore they can be converted. We also know that nearly all *A* propositions imply the existence of the contradictory of their predicate, and therefore they

can be inverted. But we let *All S is P* stand for all universal affirmative propositions whatever, regardless of the question whether they can be converted or inverted. This has been the main factor in creating the problem of the existential import of propositions. Dr. Keynes has truly said: "Strictly speaking, a symbolic expression, such as *All S is P,* is to be regarded as a *propositional form,* rather than as a proposition *per se.* For it can not be described as in itself either true or false."[3] Accordingly, logicians have been led to inquire how eduction and the doctrine of opposition would be affected when the terms of the various propositions were interpreted as implying now one thing, now another. But in practically every case the result of the discussion is determined by what the terms of the proposition are interpreted to *imply,* not by something which is assumed independently of the proposition. The following quotation from Dr. Keynes is pertinent to what has just been said. On pages 223 and 228 he deals with the propositions under the following supposition: "Let every proposition be understood to imply the existence of both its subject and its predicate and also of their contradictories." And then on page 228 he adds this footnote: "It would be quite a different problem if we were to assume the existence of *S* and *P* independently of the affirmation of the given proposition. A failure to distinguish between these problems is probably responsible for a good deal of the confusion and misunderstanding that has arisen in connection with the present discussion. But it is clearly one thing to say (*a*) 'All *S* is *P* and *S* is assumed to exist,' and another thing to say (*b*) 'All *S* is *P,*' *meaning thereby* '*S* exists and is always *P.*' In case (*a*) it is futile to go on to make the supposition that *S* is non-existent; in case (*b*), on the other hand, there is nothing to prevent our making the supposition, and we find that, if it holds good, the given proposition is false."

One further observation suggests itself in connection with the partial inverse of *A.* In my last paper I pointed out that the *O* proposition gives no information whatever, even by implication, about its predicate. This has a very vital bearing on the doctrine of the distribution of the predicate. The following question demands a distinct answer in the affirmative or the negative: Does a distributed predicate term give information about more individuals in the extension of the term than does an undistributed predicate term? If this question is answered in the affirmative, the partial inverse of *A* is invalid, in spite of whatever device we may employ to justify it; and if it is invalid, conversion and obversion are illicit processes. If the question is answered in the negative, then it is obviously in-

[3] *Formal Logic,* 4th ed., p. 53.

adequate and misleading to pronounce a given conclusion in *O* invalid on the sole ground that its predicate is distributed. Why shouldn't it be distributed, if the mere fact of its being distributed conveys no information about it? If the conclusion in *O* is declared to be invalid on some other ground than the fact that the predicate is distributed, that is a different matter altogether. But is it not unusual for a work on logic to indicate any other reason when it sets about proving the rules of the categorical syllogism and determining the moods of the four figures? Consider the following argument: *All M is P, Some S is not M,* therefore *Some S is not P.* It must be remembered that all *A* propositions, with hardly an exception, imply *Some things are not P.* If this implication validates the partial inverse, *Some non-S is not P,* why does it not validate the conclusion, *Some S is not P?* It is plainly no answer to say that *P* is distributed in *Some S is not P.*

Dr. Hammond takes exception to an expression which occurred in my argument against the class mode of interpreting the categorical proposition. Since he does not expressly dispute the point I was there making, there might seem to be little use in discussing his objection. But his criticism tends to obscure the issue of my argument and therefore calls for a word of comment. His general theory as to the distributive and collective use of terms need not engage us here. He seems to hold that only collective terms can be used collectively. He says that in the proposition, *Any regiment is made up of soldiers,* "regiment" is used collectively and is distributed. I had thought that a term must be used distributively in order to be distributed. Since the predicate "made up of soldiers" is asserted of every regiment, that is, of all regiments taken one by one, I should think that the subject "regiment" is used distributively. In the proposition, *The American regiments won the victory,* I should say that "the American regiments" is used collectively, because the predicate "won the victory" is not asserted of the American regiments taken one by one. Take the propositions, *The pupils of the class are boys, The pupils of the class weigh three tons.* In the first proposition I should consider that "the pupils of the class" is used distributively and that the subject is distributed; in the second, that "the pupils of the class" is used collectively and that the subject is a singular term. But, as I said, there is no need to discuss Dr. Hammond's general theory. In my paper I had written: "In the proposition, *All the angles of a triangle are equal to two right angles,* no logician would speak of the subject term, 'angle of a triangle,' as either distributed or undistributed." Dr. Hammond says that the subject is not "angle of a triangle," but "all the angles of

a triangle.'' If the example be taken out of its context, there may be something to be said for Dr. Hammond's view; but considered in its context and in relation to the point it was intended to illustrate, there was a special appropriateness in speaking of ''angle of a triangle'' as the subject. I was arguing against the class mode of reading categorical propositions and I used this example to illustrate the incorrectness of reading the propositions in that way. On the class interpretation of propositions the subject in *All men are animals* stands for a class, that is, for a collection, and this collection is affirmed to be included in another collection. In spite of this, the subject is said to be ''man,'' not ''all men.'' And yet unless ''all men'' be taken together as a collection (*i.e.*, collectively), and not one by one (*i.e.*, distributively), the class mode of reading the proposition is not employed at all. The point I was endeavoring to make was this, that if the logician interpreted the subject and predicate of that proposition as classes, he had no more right to call ''man'' the distributed subject than he had to call ''angle of a triangle'' the distributed subject of *All the angles of a triangle are equal to two right angles.*

The point which has just been discussed suggests another remark. When the logician borrows a term from common language because its meaning renders it suitable to a given purpose, he should hesitate to employ it in such a way that its original meaning is lost. Dr. Hammond says: ''If the term be singular, then in any assertion made of it it will be distributed, even though it have no extension in the sense of component species, since the assertion is taken as true of the only instance of the term there is'' (p. 134). Now, of course, no fault can be found with Dr. Hammond personally for holding this opinion, since it is shared by others. But it is obvious that ''distributed'' has been emptied of all its original meaning when it is applied to a term which refers to a single object. It is as if we were to say, ''The mother distributed the apple to her son,'' and then were to defend our use of the word ''distributed'' by the plea that that was the only apple the mother had. It is bad enough to speak of a singular proposition as ''universal'' without calling its subject ''distributed.'' Over and above the inappropriateness of calling a singular proposition universal, there is this further disadvantage connected with it, that a pair of universal opposite propositions (*All S is P, No S is P*) may in a given instance be false together, but this is never the case with a pair of singular opposites (*This S is P, This S is not P*). The universal and the singular proposition have this in common, that their subject is definite, and thus they serve the purpose of securing identity of reference when employed along

with another proposition in a syllogism. Identity of reference is the main consideration in dealing with the premises of the categorical syllogism, and if a terminology could be invented which should set this forth simply and unambiguously and which should be universally applicable, it would be a distinct gain to logic. As it is, separate provision has commonly to be made for arguments like the following: *Most M is P, Most M is S,* therefore *Some S is P.* We may, however, construct *dicta* for the third figure which will cover every possible syllogism in that figure; thus: 1. *If [every M or] some M is both S and P, then some S is P.* 2. *If [every M or] some M is S and not P, then some S is not P.* "Every *M*" is enclosed in brackets because the *dicta* are really complete without it. The first *dictum* provides for the moods *Darapti, Disamis,* and *Datisi;* the second provides for *Felapton, Bocardo,* and *Ferison;* and the two together provide for every possible mood in the third figure, whatever be the sign of quantity which is employed. Moreover, they give us the three rules which are required to justify any combination of premises in the third figure, namely: 1. The subjects of the premises must overlap. 2. The minor premise must be affirmative. 3. The conclusion must be particular.

In the concluding paragraph of his article Dr. Hammond quotes me as follows: "The use of the doctrine of the distribution of the predicate involves a vicious circle. . . . The logician . . . first calls upon the student's knowledge of the implication of propositions to prove the doctrine, and then he bids the student call upon his knowledge of the doctrine in order to find out the implication." Dr. Hammond claims that this objection "involves final questions of the nature of logic." I do not understand how the objection can involve such questions unless the doctrine of the distribution of the predicate is so deeply imbedded in the substance of logical theory that there can not be a science of Logic without it. Surely no one would maintain that this doctrine is absolutely essential to Logic. But perhaps I have misunderstood the drift of Dr. Hammond's remark. The point is touched upon very briefly in his article; and it would be unprofitable to continue a discussion which, after all, may be based upon a misunderstanding.

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